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09/770,035	01/25/2001	Essam Sourour	4015-858	5212

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EXAMINER

DAVIS, TEMICA M

ART UNIT PAPER NUMBER

2681

DATE MAILED: 10/07/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/770,035

Applicant(s)

Sourour et al.

Examiner

Temica M. Davis

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Jan 25, 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 9-26 is/are rejected.
- 7) ☒ Claim(s) 4-8 is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 2 6) ☐ Other:

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DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 22 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Claim 22 recites the limitation "said characteristic change" in lines 2 and 3. There is insufficient antecedent basis for this limitation in the claim. For purposes of examination, the examiner will interpret "said characteristic change" as best understood.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published

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under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or
(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

5. Claims 1-3, 13, 15-19, 24-26 are rejected under 35 U.S.C. 102(e) as being anticipated by Sanders, U.S. Patent No. 6,567,653.

Regarding claim 1 Sanders discloses a transmitter comprising a modulator to generate a modulated output signal responsive to at least one baseband information signal; an amplifier to generate a transmit signal based on amplifying said modulated output signal, said amplifier having at least first and second operating modes; and a phase compensator to selectively impart a compensating phase shift to said at least one baseband information signal to offset an expected phase shift imparted to said transmit signal by said amplifier when operating in said second mode (col. 7, line 65-col. 8, line 39).

Regarding claim 2, Sanders discloses the transmitter of claim 1 wherein said amplifier comprises a multi-stage power amplifier with at least one selectively enabled amplifier stage, that is selectively enabled to switch between said first and second operating modes (col. 8, lines 16-39).

Regarding claim 3, Sanders discloses the transmitter of claim 1 wherein said phase compensator comprises a complex multiplier to selectively multiply said at least one baseband information signal by a compensation term to impart said compensating phase shift to said at

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least one baseband information signal that is opposite of said expected phase shift imparted to said transmit signal by said amplifier when operating in said second mode (col. 8, lines 3-15).

Regarding claim 13, Sanders discloses the transmitter of claim 1 wherein said phase compensator comprises a portion of a digital processor executing program instructions to effect phase compensation of said at least one baseband information signal (col. 8, lines 3-15).

Regarding claim 15, Sanders discloses the transmitter of claim 1 wherein said transmitter comprises a mobile terminal transmitter forming a portion of a mobile terminal, said mobile terminal supporting wireless communication in a mobile communication environment (col. 3, lines 50-58).

Regarding claim 16, Sanders discloses the transmitter of claim 15 wherein said mobile terminal further comprises a processor to control said phase compensator (figure 6).

Regarding claim 17, Sanders discloses a method of substantially preventing phase shift changes in a transmit signal arising from changing modes in a transmit amplifier, the method comprising: generating a modulated signal responsive to a baseband information signal; amplifying said modulated signal via said transmit amplifier to generate said transmit signal; selectively operating said transmit amplifier in a first mode and at least one additional mode, wherein each additional mode imparts an expected phase shift in said transmit signal relative to said first mode; sensing when said amplifier changes to one of said additional modes; and imparting a compensating phase shift to said baseband information signal that is opposite to said

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expected phase shift imparted to said transmit signal for a current one of said at least one additional modes (col. 7, line 65-col. 8, line 15; figure 6).

Regarding claim 18, Sanders discloses the method of claim 17 wherein said first mode and said at least one additional mode of operating said transmit amplifier correspond to different transmit power ranges, and further comprising setting a value of said compensating phase shift based on a current one of said at least one additional modes (col. 8, lines 16-50).

Regarding claim 19, Sanders discloses the method of claim 17 further comprising updating a value of said compensating phase shift based on at least one current operating condition of said transmit amplifier (col. 8, lines 3-40).

Regarding claim 24, Sanders discloses the method of claim 17 wherein said transmit amplifier comprises a portion of a mobile terminal for use in a mobile communication network, and further comprising: changing between said first mode and said additional modes based on a transmit signal requirement of said mobile terminal; and setting a value of said compensating phase shift based on a current one of said first mode and said additional modes (col. 8, lines 10-39).

Regarding claim 25, Sanders discloses the method of claim 24 wherein said transmit signal requirement is a transmit signal power requirement, and further comprising selecting one of said first mode and said additional modes of said transmit amplifier based on said transmit signal power requirement (col. 8, lines 10-39).

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Regarding claim 26, Sanders discloses the method of claim 17 wherein imparting said compensating phase shift to said baseband information signal that is opposite to said expected phase shift imparted to said transmit signal for a current one of said at least one additional modes comprises: imparting no compensating phase shift to said baseband information signal when said transmit amplifier operates in said first mode; and imparting a selected compensating phase shift to said baseband information signal when said transmit amplifier operates in one of said additional modes (col. 8, lines 3-15).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 9-11, 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sanders and Malec, U.S. Patent No. 5,150,072.

Regarding claim 9, Sanders discloses the transmitter of claim 1 as described. Sanders, however, fails to disclose a test circuit to determine said expected phase shift imparted to said transmit signal by said amplifier when operating in said second mode.

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In a similar field of endeavor Malec discloses distortion correction for an amplifier system. Malec further discloses a test circuit to determine said expected phase shift imparted to said transmit signal by said amplifier when operating in a mode (col. 7, line 60-col. 8, line 12).

At the time of invention, it would have been obvious to a person of ordinary skill in the art to modify Sanders with the test circuit used in Malec for the purpose of ensuring that the amplifier circuitry will operate at optimum performance based on test values.

Regarding claim 10, the combination of Sanders and Malec discloses the transmitter of claim 9 further comprising inherently a processor to selectively activate said test circuit (Malec, figure 1).

Regarding claim 11, the combination of Sanders and Malec discloses the transmitter of claim 10. The combination, however, fails to disclose a memory associated with said test circuit to store a reference value determined from testing said amplifier via said test circuit, said reference value used to set said compensation term.

The examiner contends, however, that at the time of invention, such a feature would have been obvious to a person of ordinary skill in the art in order to have the capability to quickly recall previous values used in the operation of the system.

Regarding claim 22, Sanders discloses the method of claim 17 as described above. Sanders, however, fails to disclose: testing said transmit amplifier to determine a calibrated value for said characteristic change in phase shift imparted to said transmit signal for at least one of

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said at least one additional modes; and storing said calibrated value for subsequent use in imparting said phase shift to said baseband information signal.

Malec reads on these limitations (col. 7, line 60-col. 8, line 12).

At the time of invention, it would have been obvious to a person of ordinary skill in the art to modify Sanders with the test circuit used in Malec for the purpose of ensuring that the amplifier circuitry will operate at optimum performance based on test values.

Regarding claim 23, the combination of Sanders and Malec discloses the method of claim 22 as described above. The combination, however, fails to disclose updating said calibrated value based on periodic testing of said transmit amplifier.

The examiner contends, however, that at the time of invention, such a feature would have been obvious to a person of ordinary skill in the art for the purpose of ensuring the appropriate values are used to produce the desired optimum system performance.

8. Claims 12 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sanders.

Regarding claim 12, Sanders discloses the transmitter of claim 1 as described above. Sanders, however, fails to disclose a memory to store a reference value representative of said expected phase shift imparted to said transmit signal by said amplifier when operating in said second mode, said reference value used by said phase compensator to set said compensation term.

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Regarding claim 14, Sanders discloses the transmitter of claim 1 as described above, and further discloses the transmitter implemented in mobile station (col. 3, lines 50-58). Sanders, however, fails to disclose wherein the transmitter is implemented in a base station.

The examiner contends, however, that at the time of invention, such a feature would have been obvious to a person of ordinary skill in the art since base stations are known to transmit signals, wherein such signals may need to be amplified in order to ensure the transmitted signal reaches its destination.

9. Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sanders in view of Chow et al (Chow), U.S. Patent No. 6,614,854.

Regarding claims 20 and 21, Sanders discloses the method of claim 19 as described above. Sanders, however, fails to disclose wherein said at least one current operating condition of said transmit amplifier comprises ambient temperature, and further comprising setting said compensating phase value based on a current ambient temperature of said transmit amplifier, the method further comprising accessing a look-up table based on said current ambient temperature to set said value of said phase shift imparted to said baseband information signal.

In a similar field of endeavor, Chow discloses a look-up table for use with a transceiver comprising an amplifier, wherein the look-up table has operating conditions of an amplifier including the ambient temperature of the amplifier (col. 9, lines 25-53 and col. 10, lines 26-61).

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At the time of invention, it would have been obvious to a person of ordinary skill in the art to modify Sanders with the teachings of Chow for the purpose of selecting the best values for the amplifier circuit in order to achieve optimum system performance.

Allowable Subject Matter

10. Claims 4-8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 4, prior art fails to suggest or render obvious a phase compensator further comprises: an indicator signal input to receive a mode indicator identifying a current mode of said amplifier, said current mode being one of said at least first and second modes; a compensation signal input to receive compensation values; processing logic to multiply said at least one baseband information signal by a compensation term based on said compensation values; and control logic responsive to said mode indicator to select as output from said phase compensator said at least one baseband information signal taken before or after operation of said processing logic.

Regarding claims 5-8, they are indicated allowable based on their dependence of allowable claim 4.

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Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Stengel et al, U.S. Patent No. 5,901,346, discloses a method and apparatus utilizing a compensated multiple output signal source.

Williams, U.S. Patent No. 5,898,906, discloses a system and method for implementing a cellular radio transmitter device.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Temica M. Davis whose telephone number is (703) 306-5837. The examiner can normally be reached on Monday-Thursday from 6:45 am to 3:15 pm. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner are unsuccessful, the examiner's supervisor, Sinh Tran, can be reached on (703) 305-4040.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to TC2600 Customer Service at (703) 306-0377.

Any response to this communication should be mailed to:

Commissioner of Patents and Trademarks

Washington, DC 20231

Or faxed to:

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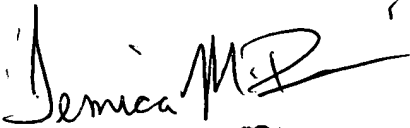
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(703) 872-9314 (for any communications intended for entry).

*Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,
Arlington, VA., Sixth Floor (Receptionist).*

Temica M. Davis

September 30, 2003


TEMICA M. DAVIS
PATENT EXAMINER